

WHAT IS CLAIMED IS:

1. An optical-axis directional indicating apparatus for optical communication comprising:

a photoreceptor having a light-receiving surface and a plurality of optical receiving elements arranged on the surface in a first direction and a second direction orthogonal to the first direction, to receive a transmitted light beam;

a detector to detect levels of the light beam received at the optical receiving elements;

a plurality of display elements arranged in the first and second directions so as to correspond to the optical receiving elements of the photoreceptor ; and

a switch circuit to selectively turn on or off the display elements in accordance with the levels of the light beam detected by the detector, to indicate whether or not an optical axis of the light beam is deviated in the first and/or the second direction on the light-receiving surface of the photoreceptor.

2. The optical-axis directional indicating apparatus according to claim 1 wherein the switch circuit includes a comparator to compare given reference values determined based on allowable ranges of deviation of the optical axis of the light beam in the first and second directions on the light-receiving surface of the photoreceptor and a first absolute value of a difference in the levels of the light beam received at the optical receiving elements arranged in the first direction and also a second absolute value of a difference in the levels of the light beam received at the optical receiving elements arranged in the second direction, the switch circuit selectively turn on or off the display elements in accordance with results of comparison, thus indicating that the deviation of the optical axis in the first and/or the second direction is within or out of allowable ranges.

3. The optical-axis directional indicating apparatus according to claim 2 further comprises a communication-available indicating display element that is turned on by the switch circuit to indicate that optical communication is available when the first and second absolute values are smaller than the reference values.

4. The optical-axis directional indicating apparatus according to claim 2 wherein each of the display elements includes a plurality of display segments arranged in the first or the second direction to be selectively turned on or off by the switch circuit in

accordance with the results of comparison, thus indicating in stages that the deviation of the optical axis in the first or the second direction is within or out of the allowable range in the first or the second direction.

5. An optical wireless communications system comprising:

a first optical wireless communications apparatus for transmitting a light beam; and

a second optical wireless communications apparatus for receiving the light beam, the second optical wireless communications apparatus including:

a photoreceptor having a light-receiving surface and a plurality of optical receiving elements arranged on the surface in a first direction and a second direction orthogonal to the first direction, to receive the light beam;

a detector to detect levels of the light beam received at the optical receiving elements;

a plurality of display elements arranged in the first and second directions so as to correspond to the optical receiving elements of the photoreceptor ; and

a switch circuit to selectively turn on or off the display elements in accordance with the levels of the light beam detected by the detector, to indicate whether or not an optical axis of the light beam is deviated in the first and/or the second direction on the light-receiving surface of the photoreceptor.

6. The optical wireless communications system according to claim 5 wherein the switch circuit includes a comparator to compare given reference values determined based on allowable ranges of deviation of the optical axis of the light beam in the first and second directions on the light-receiving surface of the photoreceptor and a first absolute value of a difference in the levels of the light beam received at the optical receiving elements arranged in the first direction and also a second absolute value of a difference in the levels of the light beam received at the optical receiving elements arranged in the second direction, the switch circuit selectively turn on or off the display elements in accordance with results of comparison, thus indicating that the deviation of the optical axis in the first and/or the second direction is within or out of allowable ranges.

7. The optical wireless communications system according to claim 6 wherein the second optical wireless communications apparatus includes a communication-available indicating display element that is turned on by the switch

circuit to indicate that optical communication is available when the first and second absolute values are smaller than the reference values.

8. The optical wireless communications system according to claim 6 wherein each of the display elements includes a plurality of display segments arranged in the first or the second direction to be selectively turned on or off by the switch circuit in accordance with the results of comparison, thus indicating in stages that the deviation of the optical axis in the first or the second direction is within or out of the allowable range in the first or the second direction.

9. An optical wireless communications system comprising:
- a first optical wireless communications apparatus for transmitting a light beam; and
 - a second optical wireless communications apparatus, connected to a monitor screen, for receiving the light beam, the second optical wireless communications apparatus including:
 - a photoreceptor having a light-receiving surface and a plurality of optical receiving elements arranged on the surface in a first direction and a second direction orthogonal to the first direction, to receive the light beam;
 - a detector to detect levels of the light beam received at the optical receiving elements; and
 - an on-screen generator to generate an on-screen signal in accordance with the levels of the light beam detected by the detector and sending the on-screen signal to the monitor screen to display a plurality of indications arranged in the first and second directions so as to correspond to the optical receiving elements of the photoreceptor, the indications being selectively turned on or off in accordance with the levels of the light beam detected by the detector, to indicate whether or not an optical axis of the light beam is deviated in the first and/or the second direction on the light-receiving surface of the photoreceptor.

10. An optical wireless communications system to be used for a video system having a video supply apparatus and a video display apparatus placed apart from each other comprising:

- a first optical wireless communications apparatus, provided for the video supply apparatus, for transmitting a light beam carrying a video signal to the video display apparatus; and

a second optical wireless communications apparatus, provided for the video display apparatus, for receiving the light beam, the second optical wireless communications apparatus including:

a photoreceptor having a light-receiving surface and a plurality of optical receiving elements arranged on the surface in a first direction and a second direction orthogonal to the first direction, to receive the light beam;

a detector to detect levels of the light beam received at the optical receiving elements; and

an on-screen generator to generate an on-screen signal in accordance with the levels of the light beam detected by the detector and sending the on-screen signal to the video display apparatus to display a plurality of indications arranged in the first and second directions so as to correspond to the optical receiving elements of the photoreceptor, the indications being selectively turned on or off in accordance with the levels of the light beam detected by the detector, to indicate whether or not an optical axis of the light beam is deviated in the first and/or the second direction on the light-receiving surface of the photoreceptor.